



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/NL97/00665</p> <p>(22) International Filing Date: 4 December 1997 (04.12.97)</p> <p>(30) Priority Data:</p> <table border="0"> <tr> <td>1005038</td> <td>17 January 1997 (17.01.97)</td> <td>NL</td> </tr> <tr> <td>1005357</td> <td>24 February 1997 (24.02.97)</td> <td>NL</td> </tr> </table> <p>(71)(72) Applicant and Inventor: PRAKKEN, Bouwe [NL/NL]; Spijkerlaan 9, NL-3471 EG Kamerik (NL).</p> <p>(74) Agent: DE BRUJN, Leendert, C.; Nederlandsch Octrooibureau, Scheveningseweg 82, P.O. Box 29720, NL-2502 LS The Hague (NL).</p>		1005038	17 January 1997 (17.01.97)	NL	1005357	24 February 1997 (24.02.97)	NL	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> With international search report. In English translation (filed in Dutch).</p>
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<p>(54) Title: DISPLAY CARTON BOX</p> <div data-bbox="308 1144 1250 1722"> </div> <p>(57) Abstract</p> <p>A conventional American box is provided with tear lines (14, 16, 17) and fold lines (15) in such a manner that it can be separated into two presentation units (1a, 1b), which are optionally connected to one another by a fold line and in which small filled bags which overlap one another when lying in the folding box stand upright.</p>								

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## DISPLAY CARTON BOX

The invention relates to a folding box as described in the preamble of Claim 1.

5           Folding boxes of this kind are used throughout the world for transporting upwardly tapering filled bags in a horizontal and partially overlapping position. The loss of volume caused by the horizontal overlapping position of the bags is low. Blanks for American boxes can be produced at a high production rate and a low cost and they can be folded  
10 and glued using a simple case erector. A drawback of an American box when used for filled bags which are stacked horizontally on top of one another is that the presentation of the bags leaves something to be desired when the cover flaps are folded open. Although it would be possible to achieve a better presentation of the bags with upwardly tapering opening ends by  
15 placing the bags upright in a box, this would be achieved at the expense of a high loss of volume in the box.

          The object of the invention is to avoid the abovementioned drawbacks and to provide a box as outlined in the preamble which is modified in such a manner that bags with upwardly tapering opening ends  
20 can be accommodated in the box in a staggered and mutually overlapping manner without substantial loss of volume, while nevertheless allowing the presentation of the bags in the box to be excellent.

          According to the invention, the folding box is characterized for this purpose by the measures of the characterizing part of Claim 1.

25           In order to bring the box into the presentation position, the said first side wall is divided into two parts along the said tear means and the said third side wall is either folded in two along a fold line or divided into two parts along a tear means, and the box or the two halves of the box are turned so that the bottom wall comes to stand vertically.  
30 There are then either two separate presentation packages or two adjacent presentation packages which are connected to one another by a fold line. In each of these packages, the filled, upwardly tapering bags are presented very clearly in an upright position without having to be repacked. If two separate presentation packages have been produced, these  
35 can be placed one behind the other on a supermarket shelf, in which case essentially the depth of the shelf is occupied but little space is taken up in the longitudinal direction of the shelf. This space is referred to as "facing" and corresponds approximately to half the height of a folding

box.

In logistical terms, the invention has considerable advantages. There is no need for repacking and in the supermarkets the presentation packages (display packages) are simply put on the shelf, instead of  
5 unpacked. If the box height selected corresponds to half the depth of a shelf, the two separate presentation packages can be placed one behind the other on a shelf. If the height of the box corresponds to the depth of a shelf, the two presentation packages formed can be placed next to one another - optionally connected by a fold line - on the shelf and both  
10 the presentation packages take up the depth of the shelf.

If the tear lines or fold line in the side walls run parallel to the direction of the corrugations in the corrugated cardboard, there is a risk of an incorrect fold being formed in the cardboard material at the location of a vertical tear or fold line during the manufacture,  
15 folding and sticking of the box. If the tear zone of the said first side wall is designed as two inclined tear lines or as two inclined tear lines which form a V, the point of which meets a vertical tear line and the tear means of the said third side wall is designed as two inclined tear lines or as two inclined tear lines which form a V, the point of which  
20 meets a vertical tear or fold line, the risk of an incorrect fold being formed along a vertical tear or fold line is essentially avoided.

If a folding box has an elongate shape with two relatively long cover flaps and two relatively short cover flaps, it is preferred for the short cover flaps to be glued to the long cover flaps, which have been  
25 folded into the closed position. In that case, it can be advantageous for that part of the long cover flaps which is situated between the short cover flaps to be provided with two tear lines which delimit a tear lip which adjoins the tear means of the side wall 1, 3 in question to which the cover flap in question is connected by means of a fold line.

30 The invention also relates to a blank which is required to form a folding box as described.

It is essential to the invention that the starting point is a corrugated-cardboard regular slotted case which is known per se, since this can be produced at a high production rate without punching and a box  
35 can be formed from the blank, by folding and sticking, by means of a simple case erector. The corrugations are perpendicular to the production direction during the making of the blank. Furthermore, on the top side the folding box has a filling opening which can be closed off by the cover flaps.

It should be noted that EP-A-0.726,205 has disclosed a rectangular box which does not belong to the category of American boxes (regular slotted cases) and which comprises a central section, two side parts and a cover which is formed by three tear-off parts and is glued to the bottom of the central section. The central part has a fold line in the centre. By removing the three cover parts, the bottom of the central part can be folded over the said fold part, with the result that two L-shaped presentation units which are connected to one another are formed. This known box does not comply with Claim 1 and is also not intended to be filled from above. The production method is considerably more complicated than that used for an American box to which the tear and fold provisions according to the invention are added.

Furthermore, FR-A-2,669,893 has disclosed an elongate box (not belonging to the category of regular slotted cases), which box comprises a bottom, two long side faces, two short side faces and a cover. A fold or tear line, which continues into the short side faces as a vertical tear line, is made in the longitudinal centre of the bottom. The cover has two tear lines which are spaced apart and run parallel to the fold or tear line of the bottom. By removing the part which lies between the tear lines of the cover, together with the parts which lie between the inclined tear lines of the short side faces, the box can be folded over or torn in two along the fold or tear line in the bottom. In the transport position, the packaged objects in the closed box stand upright on their side edge, one behind the other, which would lead to loss of shape with filled bags. Furthermore, this box does not comply with Claim 1.

The invention will now be explained in more detail with reference to the figures, which show six exemplary embodiments and in which:

Figure 1 shows a perspective view of a folding box according to a first embodiment, in the presentation position.

Figure 2 shows the blank from which the folding box in accordance with Figure 1 is produced.

Figure 3 shows a perspective view of the folding box in accordance with Figure 1 in the transport or storage position.

Figure 4 shows a perspective view of the folding box according to the first embodiment during the change from its transport position to its presentation position.

Figure 5 shows a cross-section of the folding box in the

transport position, the horizontal, mutually overlapping, upwardly tapering filled bags being shown by dashed lines.

Figure 6 shows a perspective view of a folding box according to a second embodiment, in the display position, two separate presentation  
5 units being formed by division.

Figure 7 shows a perspective view of a folding box according to a third embodiment.

Figure 8 shows a perspective view of the folding box in accordance with Figure 7, two separate boxes being formed by division.

10 Figure 9 shows a blank from which the folding box in accordance with Figure 7 is produced.

Figure 10 shows the units illustrated in Figure 8 in the presentation position, in which they are placed one behind the other on a supermarket shelf.

15 Figure 11 shows a perspective view of a fourth embodiment of a folding box according to the invention.

Figure 12 shows a perspective view of the change from the transport position of the folding box in accordance with Figure 11 to its presentation position.

20 Figure 13 shows a blank from which the folding box in accordance with Figure 11 is produced.

Figure 14 shows a perspective view of the top part of a fifth embodiment of a folding box according to the invention.

25 Figure 15 shows the blank from which the folding box in accordance with Figure 15 can be produced.

Figure 16 shows a perspective view of a sixth embodiment of a folding box according to the invention.

Figure 17 shows a blank from which the folding box in accordance with Figure 16 can be produced.

30 All the folding boxes illustrated are of the American box type (regular slotted case). An American box is produced from corrugated cardboard. The longitudinal direction of the corrugations is indicated by dashed lines in the various walls of the folding box. The various blanks show that this longitudinal direction of the corrugations of the  
35 corrugated cardboard is perpendicular to the longitudinal direction of the blank. This means that in the erected, folded and glued state of the folding box the longitudinal direction of the corrugations in the side walls of the box runs vertically. In contrast to other folding boxes, an American box can be produced at a high production rate and at low cost.

The presentation packaging shown in Figure 1 is formed in a simple manner from a rectangular folding box which is illustrated in Figure 3 and has four side walls 1, 2, 3 and 4, a bottom comprising four bottom flaps 5, 6, 7 and 8 and a cover comprising four cover flaps 9, 10, 11 and 12. This box is in turn formed from the blank which can be seen in Figure 2. The side wall 1 has a fastening flap 13 and is divided into two parts 1a, 1b by a tear line 14. A score line 15 is made in the centre of the side wall 3. The bottom flap is divided into two parts 5a, 5b by a tear line 16 which adjoins a tear line 14, and in a corresponding manner the bottom flap 7 is divided into two parts 7a, 7b by a tear line 17. The tear line 17 adjoins the score line 15.

In order to make an American box from the blank, the flap 13 is glued to the wall 4, the side wall 2 is folded through 90° with respect to the side wall 1, the side wall 3 is folded through 90° with respect to the side wall 2, the side wall 4 is folded through 90° with respect to the side wall 3. Furthermore, the bottom flaps 5, 6, 7 and 8, and also the cover flaps 9, 10, 11 and 12, are folded inwards.

In Figure 5 it can be seen how a box is filled with filled, upwardly tapering bags 18. The bags are stacked in a staggered manner with respect to one another. In order to cover the bags during transport or storage, an insert board, which is slightly smaller than the horizontal cross-section of the box, can be placed on top of the bags, the cover flaps 10 to 12 being folded onto the said insert board.

It will be clear that removing the insert board and folding open the top flaps does not provide a satisfactory presentation of the bags 18. The box shown has provisions for overcoming this drawback.

By tearing open the side wall 1 at tear line 14 and the bottom flaps 5 and 7 at the tear lines 16 and 17, respectively, and folding open the halves obtained in this way along the score line 15, in the manner shown in Figure 4, until the rear side face 3 has been folded completely in two (in which case the rear faces of the two halves 3 bear against one another) and finally turning the box, with bags 18, through 90° in such a manner that the two side-face parts 3 become bottom parts, the presentation position as shown in Figure 1 is achieved.

The term tear line (cf. 14, 16 and 17) should be interpreted broadly. A tear line will normally comprise a perforation. However, this does not exclude the possibility that the box parts on either side of the lines 14, 16 may already be separate from one another in the transport/storage position shown in Figure 3 and that these box parts of

the box are joined together by adhesive tape or similar material, in which case the adhesive tapes are removed in order to change from the box shape in accordance with Figure 3 into the box shape in accordance with Figure 1. Tear cords, zip fasteners or the like at the location of the  
5 tear lines are also possible.

Equally, it is possible if the material is easy to fold for the score line 15 under certain circumstances to be absent.

The embodiment in accordance with Figure 6 differs from that in accordance with Figures 1 to 5 by the fact that the line 15 is designed  
10 as a tear line instead of as a fold line, so that in the presentation position the two halves are separated from one another and can be placed one behind the other on a supermarket shelf.

The third embodiment in accordance with Figures 7 to 10 differs from that in accordance with Figure 6 in that:

- 15 a. a V-shaped tear means is arranged in the side wall 1 (1a, 1b) instead of the vertical tear line 11, this V-shaped tear means being delimited by two tear lines (14a, 14b) which are at an angle to the direction of the corrugations of the corrugated cardboard; as has already been stated, the longitudinal  
20 direction of the corrugated cardboard is indicated by dashed lines,
- b. instead of the incision 19 in the cover flap 9, two parallel tear lines 19a, 19b are made in this cover flap, which tear lines 19a, 19b adjoin the top ends of the abovementioned tear  
25 lines 14a, 14b,
- c. a V-shaped tear means is provided instead of the vertical tear line 15 in the side wall 3, this V-shaped tear means being delimited by two tear lines 15a, 15b which are at an angle to the direction of the corrugations of the corrugated cardboard,
- 30 d. instead of the incision 20 in the cover flap 11, two parallel tear lines 20a, 20b are provided which adjoin the top ends of the tear lines 15a, 15b.

It will be clear that by removing the material between the tear lines 19a and 19b, between the tear lines 14a and 14b, between the tear  
35 lines 20a and 20b and between the tear lines 15a and 15b, and by tearing open the bottom material along the tear lines 16, 17, the two presentation units shown in Figure 8 are formed.

The blank for the box in accordance with Figure 7 is shown in Figure 9. The presentation units formed can be turned through 90° - as



shown in Figure 10 - and placed one behind the other on a shelf. The filled bags 18 adopt an upright position and are presented clearly. When seen in the longitudinal direction of the shelf, only a small section is taken up, corresponding to a so-called "facing". By repeating the double combinations placed one behind the other, as shown in Figure 10, along the longitudinal direction of the shelf, it is possible to present clearly to the public a large number of products belonging to the trade or brand name of a company without taking up large amounts of expensive shelf length.

10           The embodiment in accordance with Figures 11 to 13 differs from that in accordance with Figures 7 to 10 in that

- a.           the tear lines 19a and 19b in the side wall 1 are at a more inclined position with respect to the direction of the corrugations of the corrugated cardboard and a vertical tear line 14c runs from the intersection of the tear lines 19a, 19b as far as the fold line between the side wall 1 and the bottom flap 5,
- b.           the tear lines 20a, 20b of the side wall 3 adopt a more inclined position with respect to the direction of the corrugations of the corrugated cardboard and a vertical fold line 15c runs from the intersection of these tear lines 20a, 20b as far as the fold line between the side wall 3 and the bottom flap 7. By removing the triangular strips of material between the tear lines 14a, 14b and 15a, 15b and tearing through the material along the tear lines 14c, 16 and 17, it is possible to obtain the units which are joined together by a short fold line 15c, as can be seen in Figure 12. These units can be turned through 90° (in accordance with Figure 1).

25           The embodiment in accordance with Figures 14 and 15 differs from that in accordance with Figures 11 to 13 in that:

- a.           the fold line 15c is replaced by a tear line,
- b.           the material between the tear lines 20a, 20b forms a projecting lip 20 which, in the folded position of the box, lies between the short cover walls 10 and 12 and bears against the end edge of the strip of material which lies between the tear lines 19a and 19b and in which the square part 22 which is delimited by tear lines can be pressed out by the thumb or finger.

35           The embodiment in accordance with Figures 16 and 17 differs from that in accordance with Figures 14 and 15 in that:

- a. the strip 21 is wider and longer and, in the folded position of the box, is glued to a part of the cover flap 9.
- b. the intersection of the inclined tear lines 15a and 15b adjoins the tear line 17.
- 5 c. the intersection of the inclined tear lines 14a and 14b adjoins the tear line 16.

It will be clear that a number of other variants and equivalents are possible within the scope of Claim 1. In terms of economy, the invention has significant advantages. By adding a number of

10 tear lines, bags packed horizontally in an American box which can be produced cheaply and quickly do not have to be repacked in the supermarket and the presentation packages, with the bags positioned vertically therein, merely have to be placed on the shelves. The packaging space available on the shelves can be utilized optimally. Per

15 facing, placing two presentation units one behind the other allows a product to be presented over the entire depth of a shelf.

CLAIMS

1. Rectangular folding box made from corrugated cardboard, of the regular slotted case type (RSC, American box), comprising:
- four side walls (1 to 4) which are connected to one another by fold lines,
  - a bottom composed of four bottom flaps (5 to 8), each bottom flap being connected by a fold line to a side wall,
  - a cover composed of four cover flaps (9 to 12), each cover flap being connected by a fold line to a side wall,
  - the direction of the corrugations of the corrugated cardboard of the side walls (1 to 4) being directed from the bottom towards the cover, perpendicularly to the fold lines between the side walls and the bottom or the cover, and the corrugations of the corrugated cardboard of the bottom flaps (5 to 8) and the cover flaps (9 to 12) adjoining the corrugations of the corrugated cardboard of the side walls (1 to 4).
- characterized
- in that a first side wall (1) is provided in the central region with a tear means (14, 14a, 14b, 14c) which runs between the cover and the bottom,
  - in that a third side wall (3), which is situated opposite the said first side wall (1), is provided with a tear means (15, 15a, 15b, 15c) or with a vertical fold line (15) or with a tear-and-fold means (15, 15a, 15b, 15c),
  - and in that tear lines (16, 17) are arranged in the two bottom flaps (5, 7) which adjoin the said first and third side walls (1, 3) via a fold line, which tear lines (16, 17) adjoin one another, adjoin the tear means of the said first side wall (1) and the tear means or the fold line or the tear-and-fold means (15) of the said third side wall (3),
  - and in that the cover flaps (9, 12) which adjoin the said first and third side walls (1, 3) are provided with a tear means or slit (19, 20) which adjoins the tear means, the fold line or the tear-and-fold means of the said first and third side walls (1, 3).
2. Folding box according to Claim 1, characterized in that the said tear means in the said first side wall (1) comprises two tear lines (14a, 14b) which run at an angle with respect to the direction of the

corrugations of the corrugated cardboard.

3. Folding box according to Claim 2, characterized in that the inclined tear lines (14a, 14b) in the first side wall (1) delimit a V which adjoins a vertical tear line (14c).

5 4. Folding box according to one of the preceding claims, characterized in that the tear means in the said third side wall (3) comprises two tear lines (15a, 15b) which run at an angle with respect to the direction of the corrugations of the corrugated cardboard.

5. Folding box according to Claim 4, characterized in that the  
10 inclined tear lines (15a, 15b) in the said third side wall (3) delimit a V, the point of which adjoins a vertical fold or tear line (15c).

6. Folding box according to one of the preceding claims, which is of elongate shape with two relatively long cover flaps (9, 11) and two relatively short cover flaps (10, 12), characterized in that the short  
15 cover flaps (10, 12) are glued to the long cover flaps (9, 11), which have been folded into the closed position.

7. Folding box according to Claim 6, characterized in that that part of the long cover flaps which is situated between the short cover flaps (10, 12) is provided with two tear lines (19a, 19b and 20a, 20b,  
20 respectively) which delimit a tear lip which adjoins the tear means (14a, 14b; 15a, 15b) of the side wall (1, 3) to which the long cover flap in question is connected by means of a fold line.

8. Blank made from corrugated cardboard for an American box (regular slotted case) according to one of the preceding claims,  
25 comprising a first side wall (1) with a tear means (14; 14a, 14b, 14c) in the centre, a second side wall (2) which is connected to the first side wall (1) via a fold line, a third side wall (3) which is provided in the centre with a fold line (15, 15c) or tear means (15, 15a, 15b, 15c) and is connected to the second side wall (2) via a fold line, and a fourth  
30 side wall (4) which is connected to the third side wall (3) via a fold line, means (13) for connecting the first or third side wall (1 or 3) to respectively the fourth and second side walls (4 and 2, respectively), four bottom flaps (5, 6, 7, 8), each connected to a side wall (1, 2, 3, 4) via a fold line, the bottom flaps which are connected to the said first  
35 and third side walls (1, 3) being provided in the centre with a tear line (16 and 17, respectively), and four cover flaps (9, 10, 11, 12), each connected to a side wall (1, 2, 3, 4) via a fold line, the cover flaps (9, 11) which are connected to the said first and third side walls (1, 3) being provided in the centre with an incision or tear means (19, 20, 19a,

19b, 20a, 20b).

and the blank being made of corrugated cardboard, in which the longitudinal direction of the corrugations is perpendicular to the fold lines between the bottom flaps or cover flaps and the side walls.

fig -1

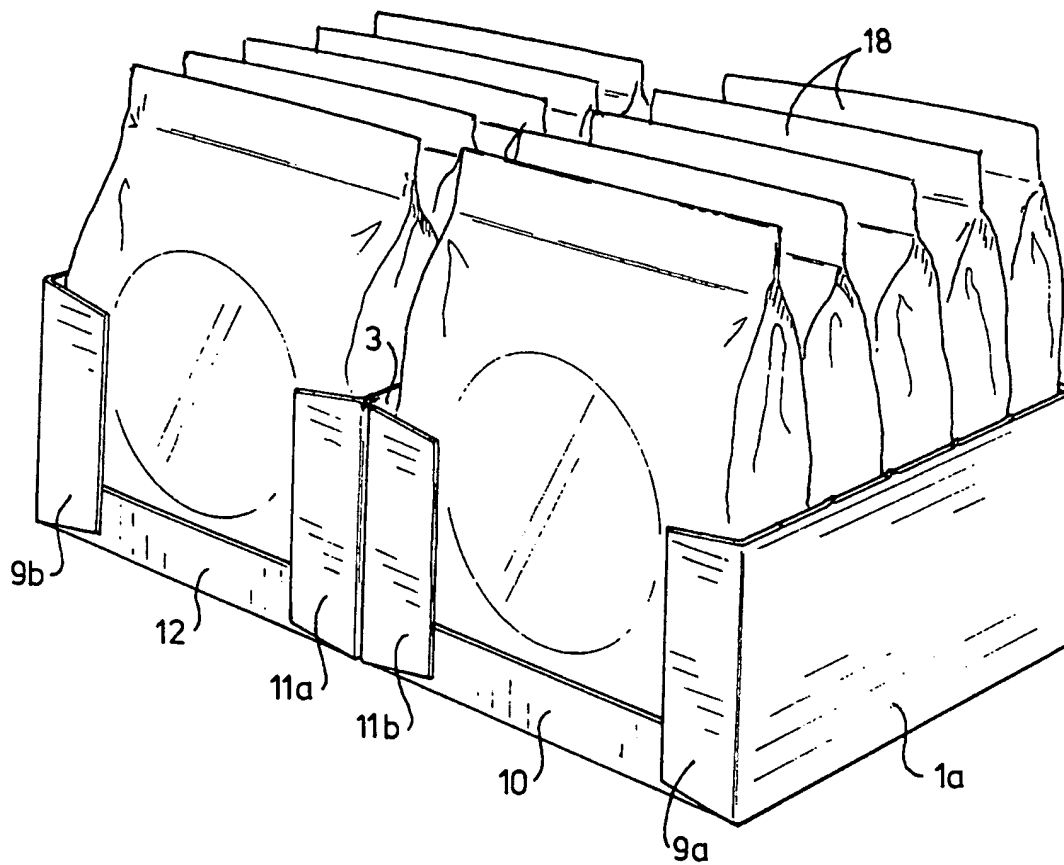


fig -2

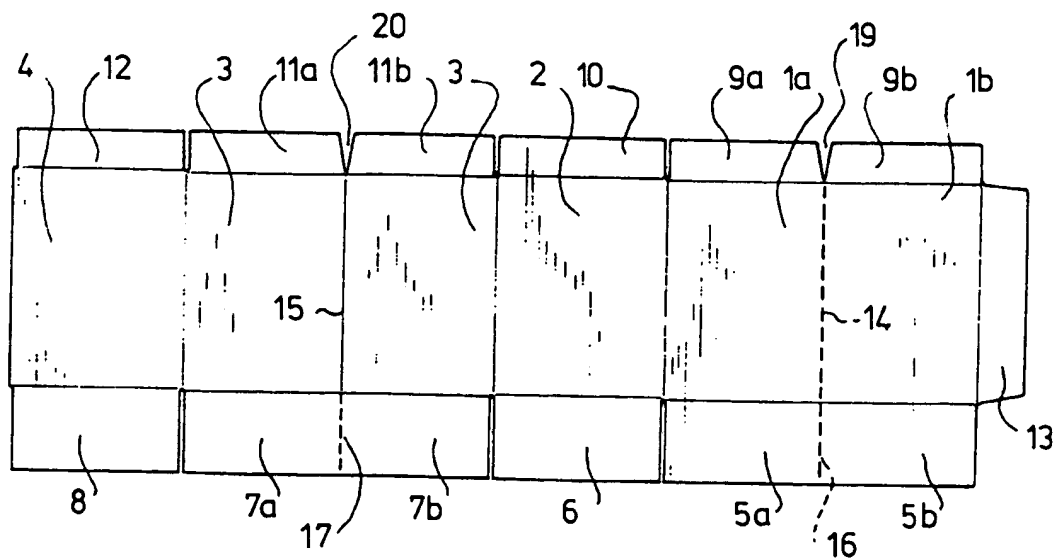


fig - 3

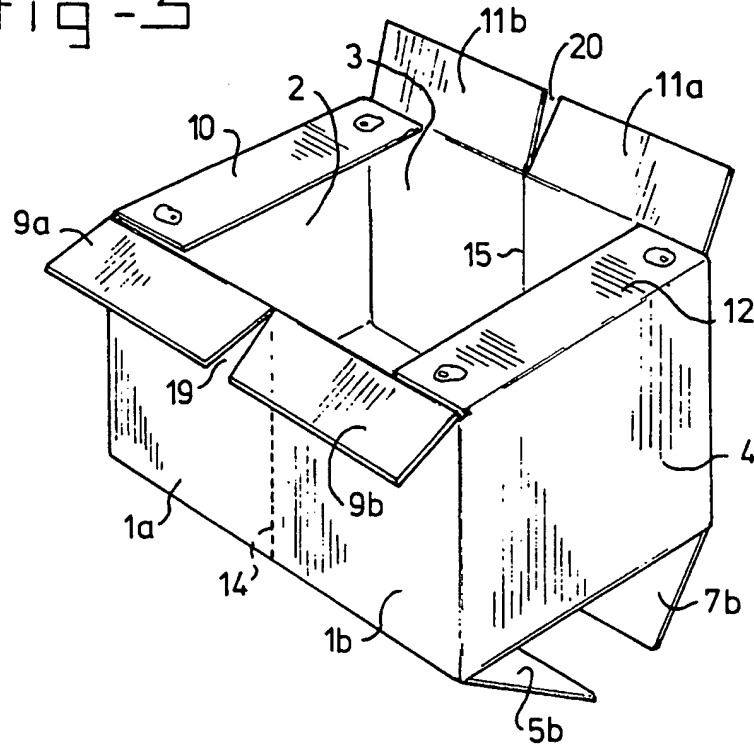


fig - 4

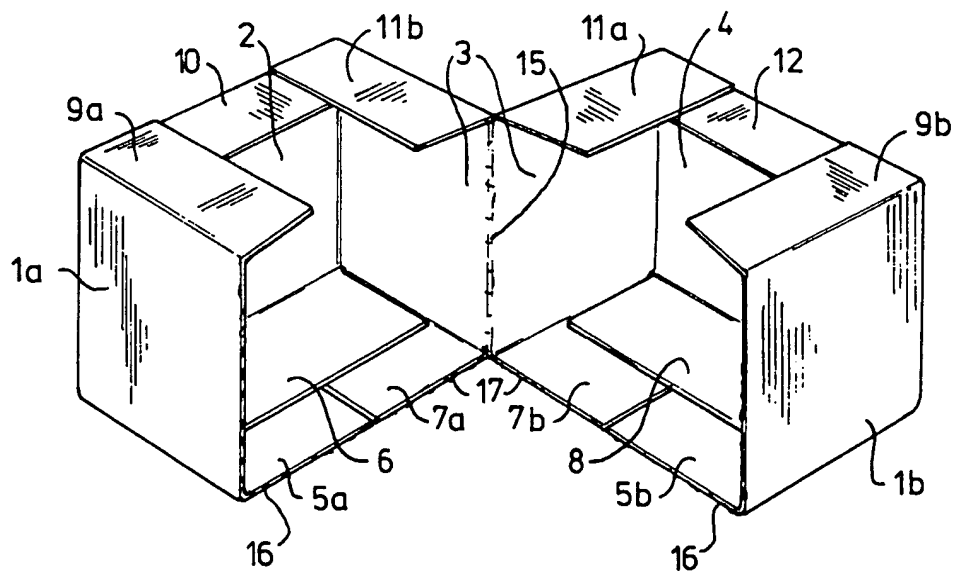


fig - 5

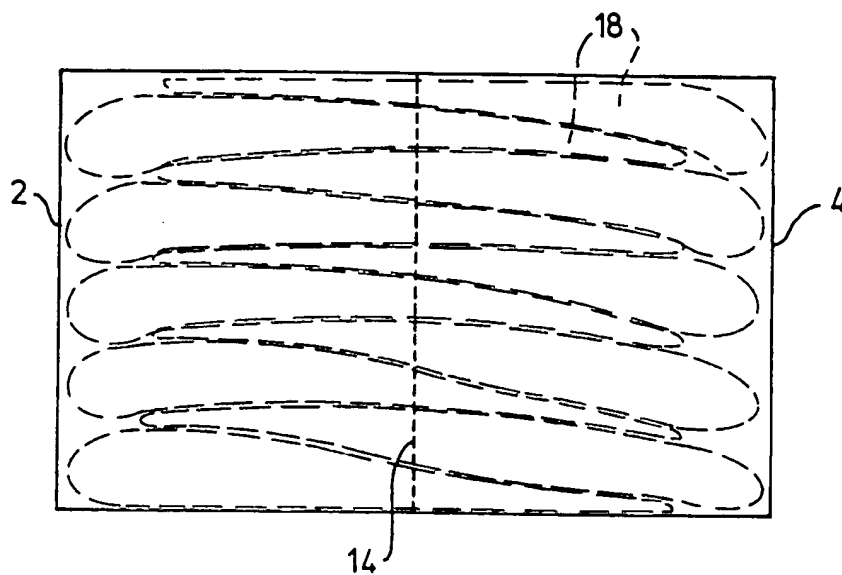
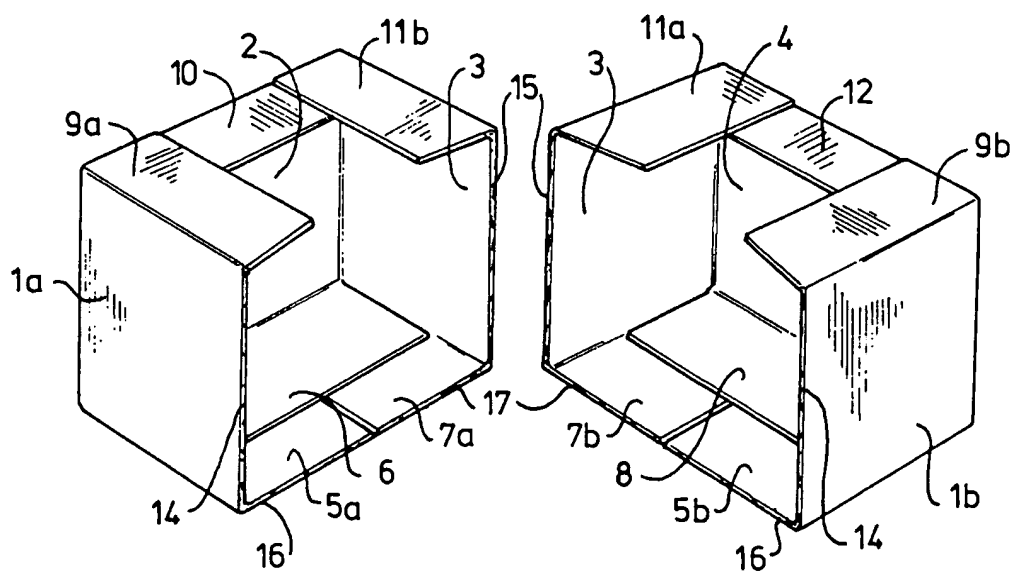


fig - 6





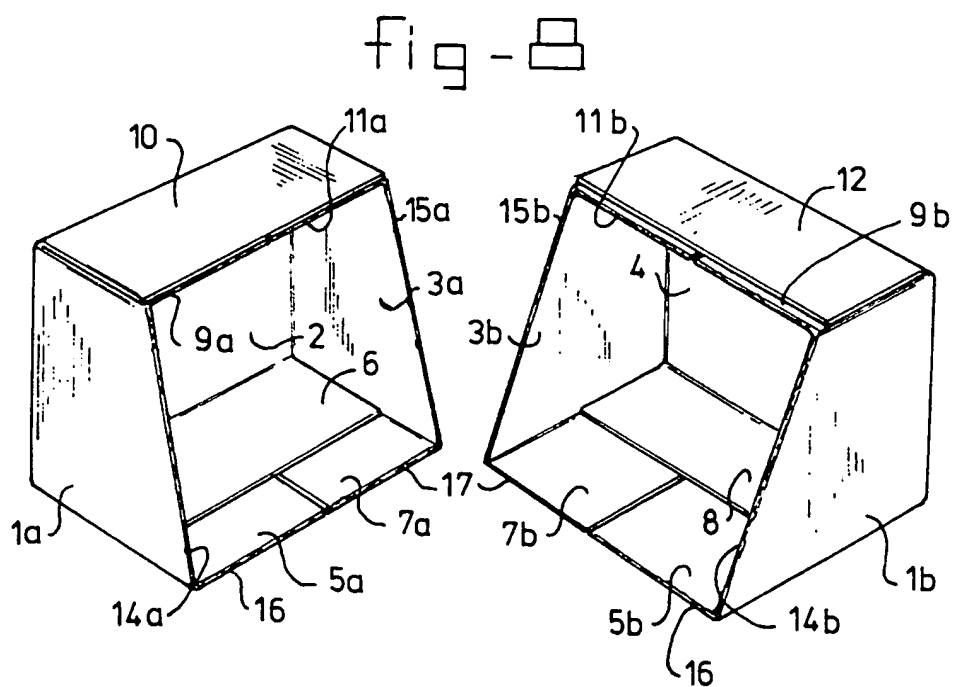
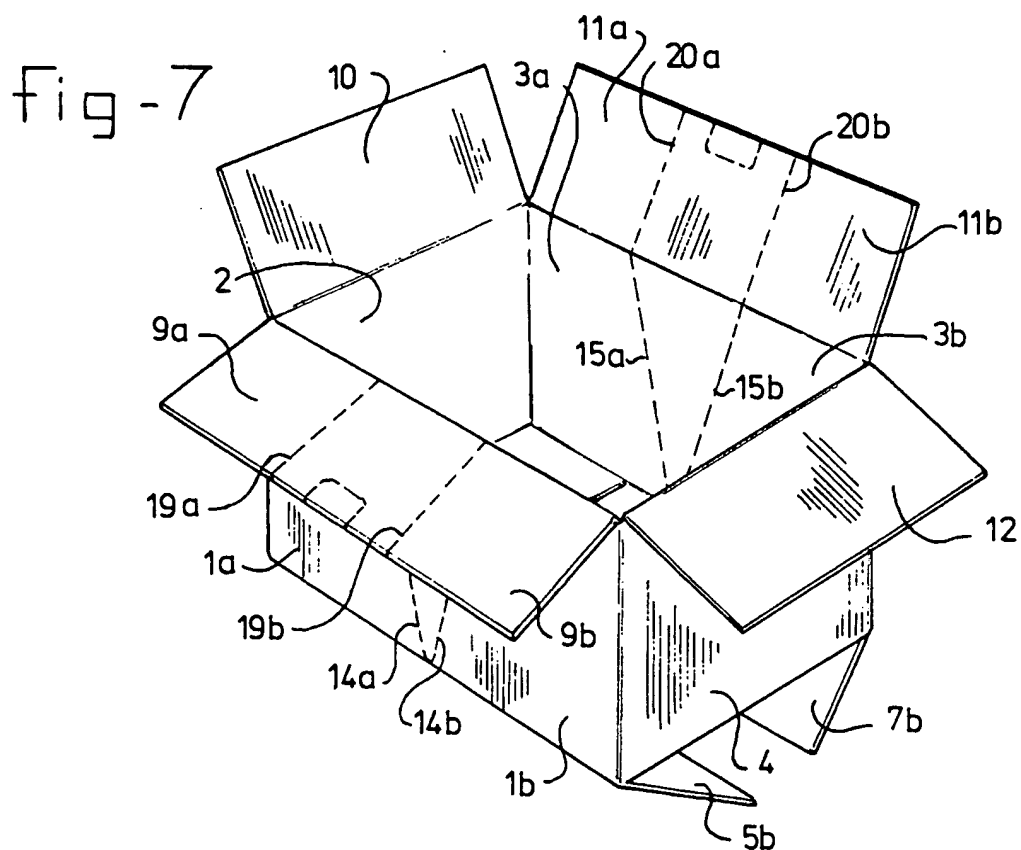


fig - 9

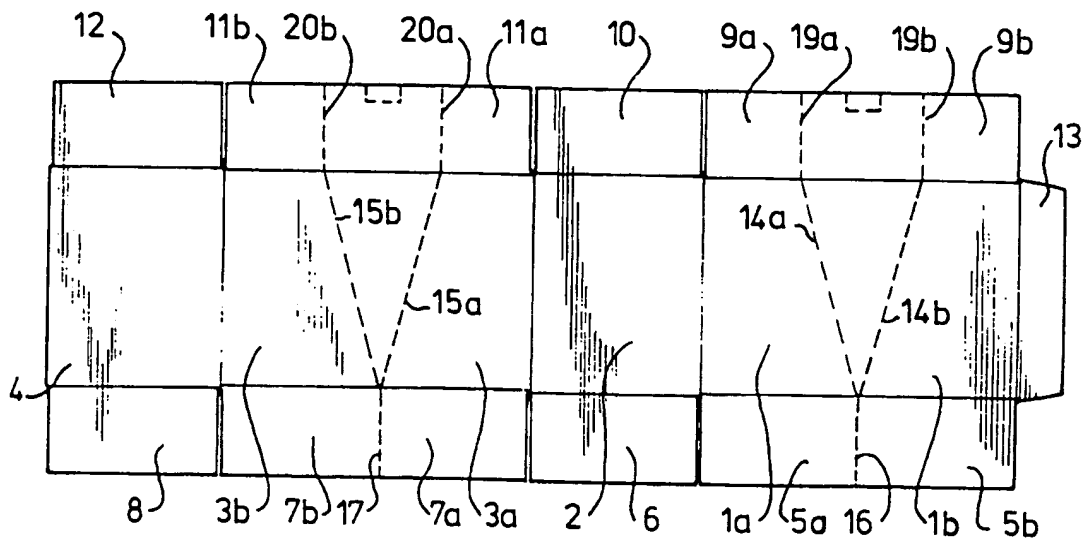


fig - 10

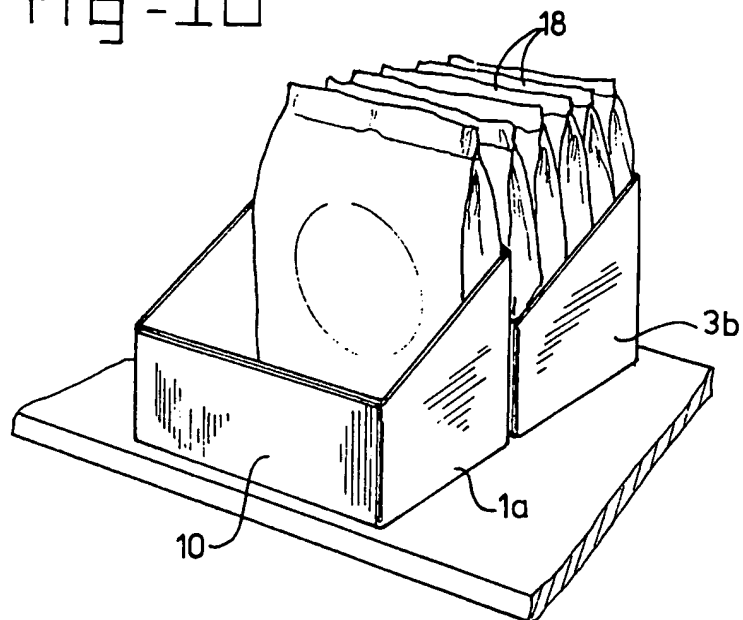


fig-11

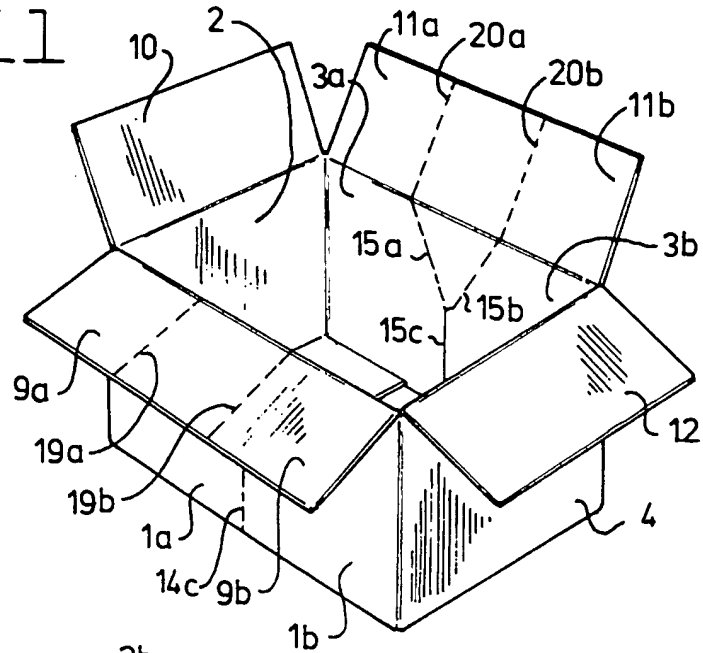


fig-12

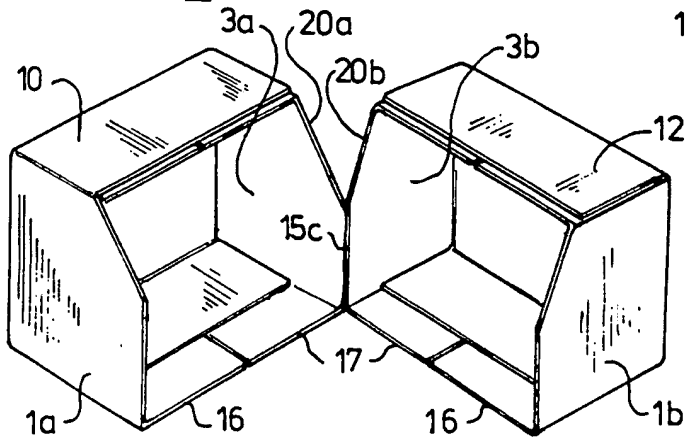


fig-13

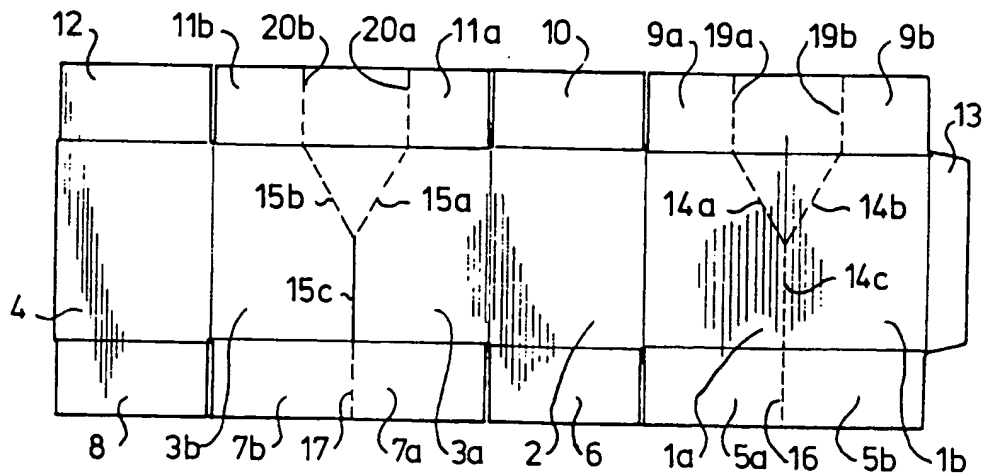


fig-14

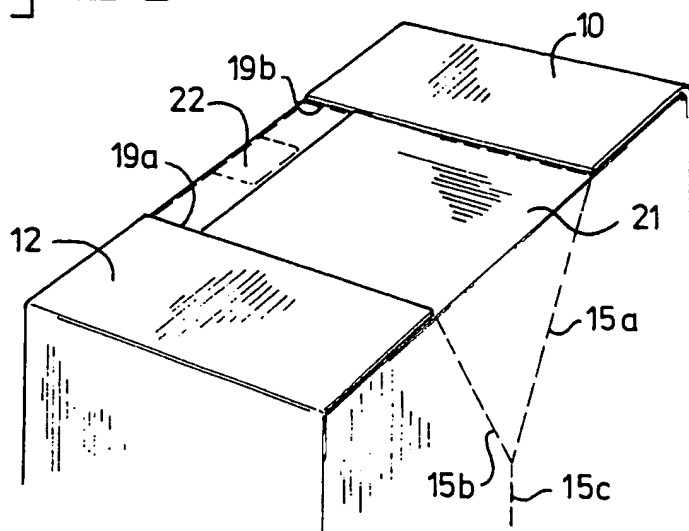


fig-15

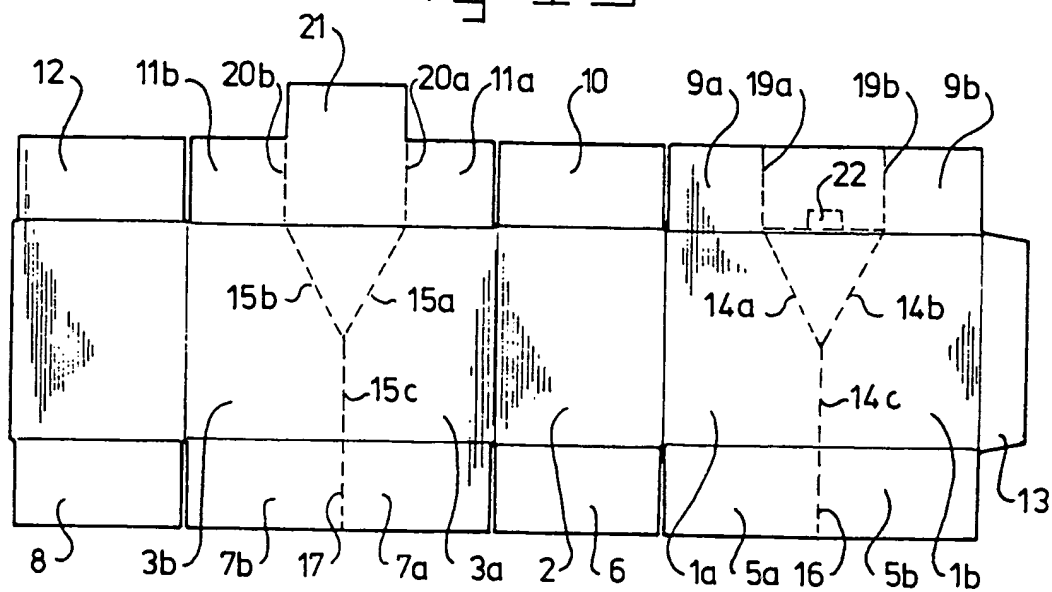


fig -16

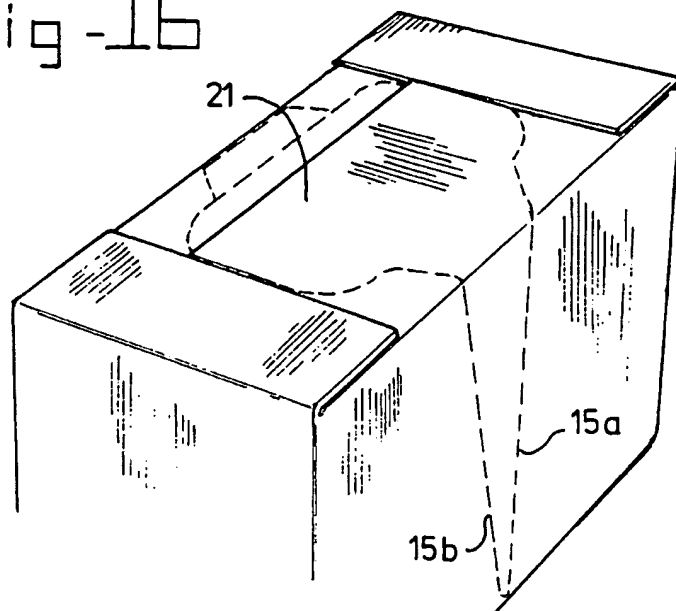
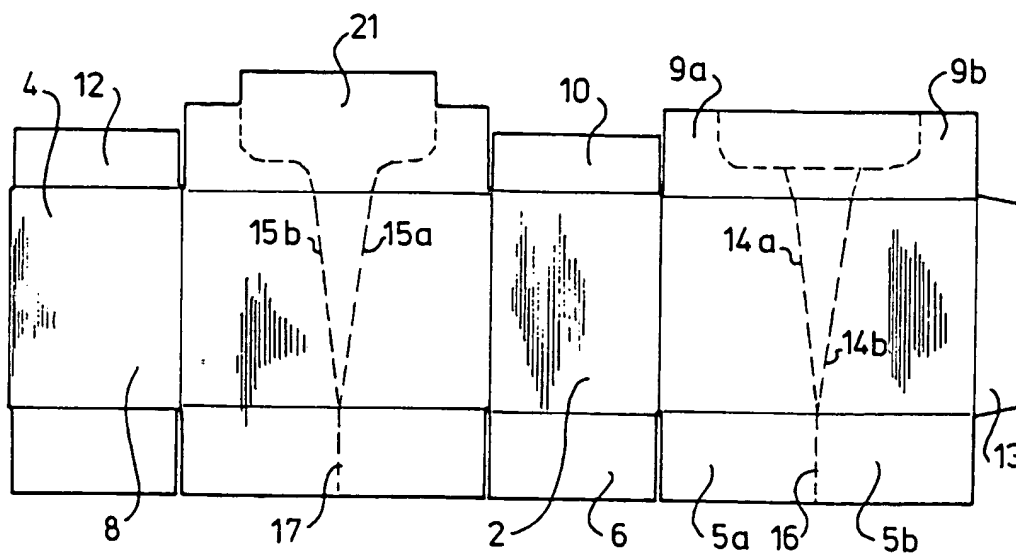


fig -17



# INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 97/00665

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 B65D5/54

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 669 893 A (SOCAR) 5 June 1992 cited in the application	1,2,4,8
A	see the whole document ---	3,5-7
A	NL 7 205 624 A (N.V. PAOIERFABRIEK "DE HOOP") 30 October 1973 see figures -----	1-6,8

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

5 March 1998

Date of mailing of the international search report

13/03/1998

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 97/00665

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2669893 A	05-06-92	NONE	
NL 7205624 A	30-10-73	BE 798662 A DE 2320190 A LU 67473 A	16-08-73 08-11-73 06-07-73